Low ESR Cap. 300mA CMOS LDO Regulator

DESCRIPTION

The AP6206 series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS technology. And it provides large currents with a significantly small dropout voltage. The AP6206 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an err correction circuit. The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments with in a range of 1.2V to 5.0V. AP6206 series are available in SOT-23, SOT-89 packages.

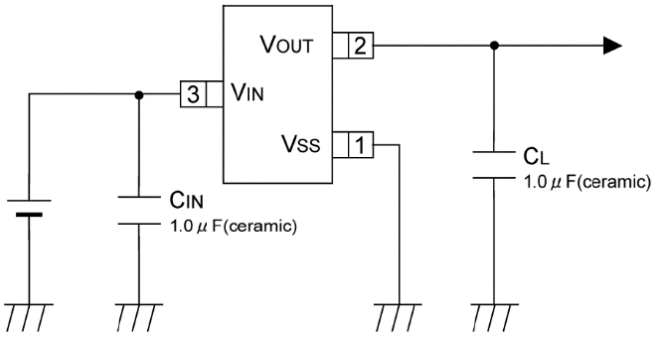
FEATURES

- Low power consumption
- Low voltage dropout : 250mV@ 100mA(3.0V typ.)
- Maximum output current : 200mA(3.0V typ.)
- Output voltage : 1.2V~5.0V(0.1V increments)
- Highly accurate : ±2%@V_{OUT}≥1.5V
- Low Quiescent current : 3μA at 6V
- Low ESR Capacitor : Ceramic capacitor compatible
- Operating temperature range : -40℃ ~ +85℃
- Halogen-Free Package is Available

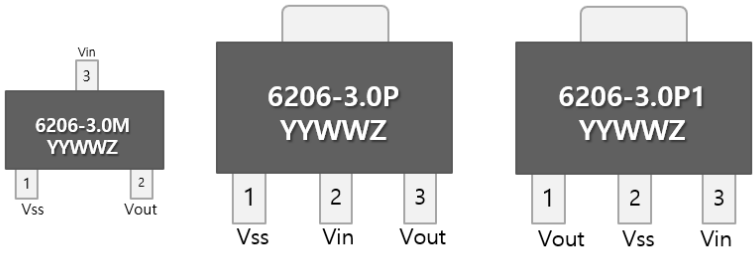
APPLICATIONS

- Battery-powered equipment
- Portable consoles
- Reference voltage source
- Digital audio equipment

TYPICAL APPLICATIONS



Pin Assignment (Top View)



SOT23-3 **SOT-89A** **SOT89B**

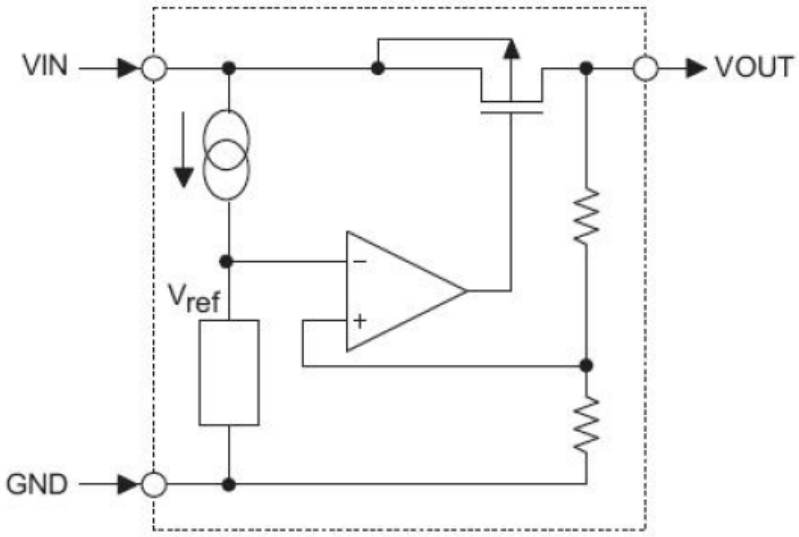
Pin Number			Pin name	Functions
SOT23-3	SOT89A	SOT89B		
1	1	2	V_{SS}	Ground
3	2	3	V_{IN}	Power Input
2	3	1	V_{OUT}	Output

Ordering Information

Part No	Package	Packing	Finish	Halogen	Reel Unit	Remark
AP6206-XXM	SOT-23-3	Reel & Tape	Sn	Free	3,000ea	
AP6206-XXP	SOT-89A	Reel & Tape	Sn	Free	3,000ea	
AP6206-XXP1	SOT-89B	Reel & Tape	Sn	Free	3,000ea	

* X.X : Output Voltage option (1.2V,1.5V,1.8V,2.0V,2.5V,3.0V,3.3V,5.0V)

Block Diagram



Maximum Ratings (TA=25°C, unless otherwise noted)

Rating	Symbol	Value		Unit
Input Voltage	V_{IN}	8		V
Output Current	I_{OUT}	500(*)		mA
Output Voltage	V_{OUT}	Vss-0.3~Vin +0.3		
Power Dissipation	PD	SOT-23-3	SOT-89	W
	**	0.25	0.5	
Storage Junction Temperature	Tstg	-55 ~ +125		°C
Operating Temperature Range	Topr	-40 ~ +85		°C
Junction Temperature Range	Tj	+150		°C

* $I_{OUT} \leqq Pd / (VIN-VOUT)$

** Mounted on a glass epoxy PCB Board (40 mm x 40 mm)

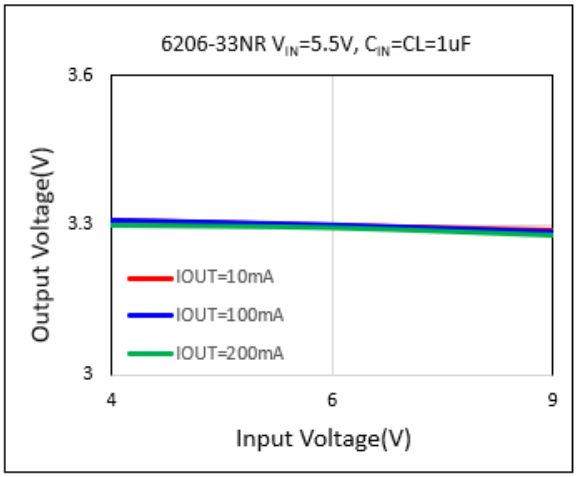
Electrical characteristics (TA=25℃ unless otherwise specified())

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Output Voltage	Vout	Vin=Vout+1V 1.0mA≤Iout≤30mA	Voutx0.98	-	Vout x 1.02	V
Output Current*1	Iout	Vin-Vout=1V	-	300	-	mA
Low dropout*2	Vdrop	Refer to the next table				
Line Regulation	dVout1/ (Vin-Vout)	1.6V≤Vin≤8V Iout=40mA	-	0.05	0.2	%/V
Load Regulation	dVout	(Vin - Vout) = 1.0V, 1mA ≤ Iout ≤ 80mA	-	12	30	mV
Output voltage Temperature Co-efficiency	dVout/ (TaVout)	Iout = 30mA, 0°C ≤ Ta ≤70°C	-	±100	-	PPM/°C
Supply current	Iss		-	3	5	μA
Input voltage	Vin		-	6	8	V
PSRR	PSRR	F=1KHz Vin=Vout+1V	-	50	-	dB
Output Noise	EN	BW=10Hz~100KHz	-	30	-	μVrms

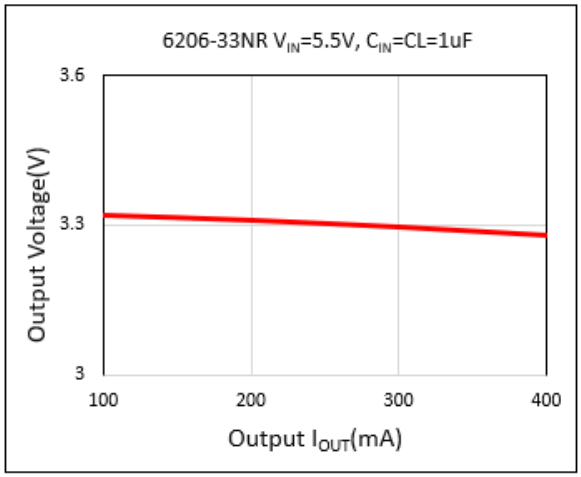
Electrical Characteristics by Output voltage

Output Voltage	Symbol	Test Conditions	Typ.	Max.	Units
Vout≤1.5V	Vdrop	Iout = 100mA	0.35	0.57	V
1.8V≤Vout≤2V			0.28	0.42	
2.8V≤Vout≤5.0V			0.19	0.35	

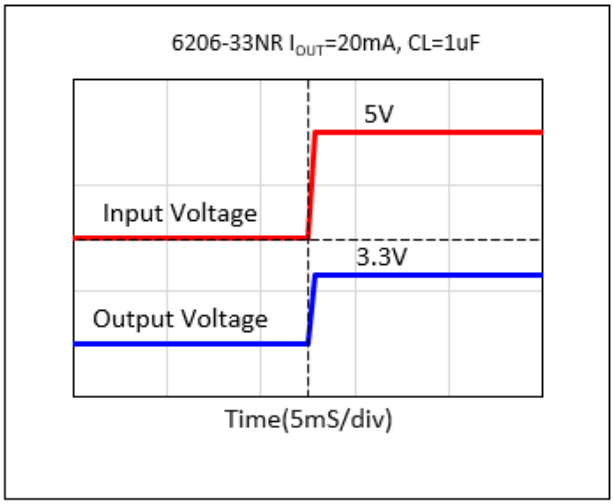
Electrical Characteristic Curves



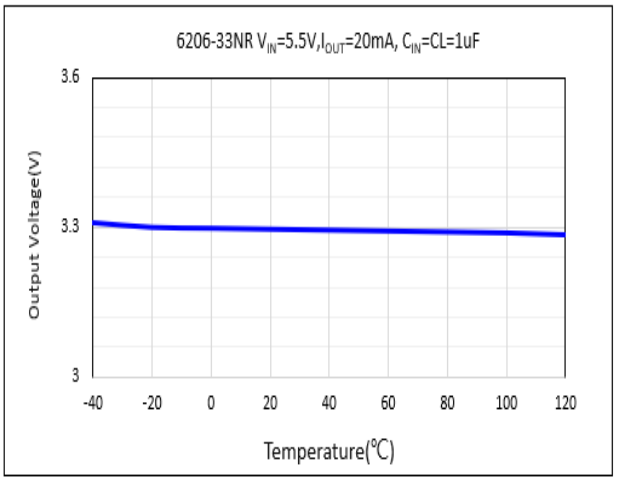
<Output voltage vs Input voltage>



<Output voltage vs Output current>



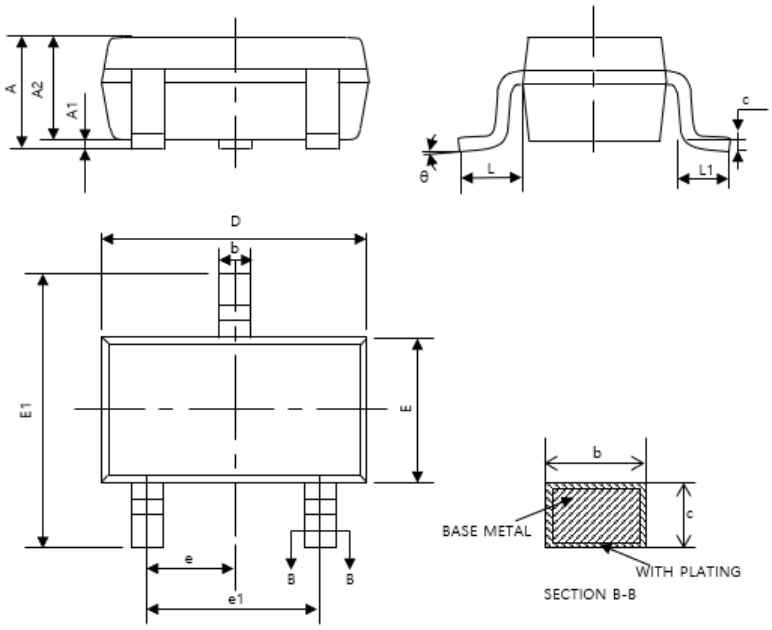
< Input Transient Response>



<Output Voltage vs. Ambient temperature>

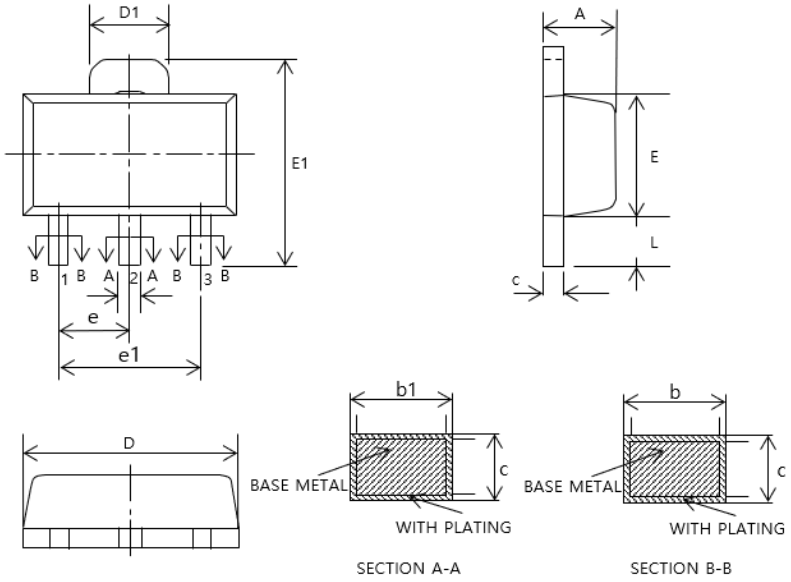
Package Dimensions

SOT23-3L



SOT23-3L unit : mm			
DIM	MIN	NOM	MAX
A	0.90	-	1.15
A1	0.00	0.05	0.10
A2	0.90	-	1.05
b	0.30	0.40	0.50
c	0.08	-	0.15
D	2.80	2.90	3.00
E	1.20	1.30	1.40
E1	2.25	2.40	2.55
e	0.95 TYP		
e1	1.80	1.90	2.00
L	0.55 REF		
L1	0.30	0.40	0.50
θ	0	—	8°

SOT89-3L



SOT-89-3L unit : mm			
DIM	MIN	NOM	MAX
A	1.40	1.50	1.60
b	0.32	-	0.52
b1	0.40	-	0.58
c	0.35	-	0.44
D	4.40	4.50	4.60
D1	1.55REF		
E	2.30	-	2.60
E1	3.94	-	4.25
e	1.50 TYP.		
e1	3.00 TYP.		
L	0.90	-	1.20

Revision History

No	Date	Contents
1	2015-01-30	Initial Brief Datasheet Release
2		
3		

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